

# Notice of Allowability

Application No.

09/295,431

Applicant(s)

YOSHIMURA ET AL.

Examiner

Michael P. Mooney

Art Unit

2877

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amdt. After Final 11/4/03.
2. ☒ The allowed claim(s) is/are 1-18,41 and 43-48.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.
5. ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
  - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☒ to Paper No. 6/03.
  - (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.
  - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

- |  |   |
|--|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)          |
| 2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                    | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____             |
| 3 <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____  | 7 <input type="checkbox"/> Examiner's Amendment/Comment                             |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
|  | 9 <input type="checkbox"/> Other  |

### **REASONS FOR ALLOWANCE**

The following is an examiner's statement of reasons for allowance:

The prior art, either alone or in combination, does not disclose or render obvious:

A substrate having optical and electrical interconnections,

including :

a first layer having a first polymeric waveguide formed therein;

a second layer having a second polymeric waveguide formed therein;

a 1<sup>st</sup> vertical optical coupler (VOC) formed in the 1<sup>st</sup> layer and optically coupled to a 2<sup>nd</sup> waveguide in the layer; wherein the 1<sup>st</sup> VOC is positioned adjacent the 2<sup>nd</sup> VOC so that light might be coupled between the 1<sup>st</sup> and 2<sup>nd</sup> waveguides in combination with the rest of claim 1.

An electrooptic (EO) module comprising :

at least one substrate, wherein each substrate is selected from a group consisting of substrates with passive polymer waveguides, substrates with electrooptic elements embedded in a polymer film, substrates having embedded electrical elements, and substrates having passive polymer waveguides and embedded electrical and electro-optic elements;

a 1<sup>st</sup> electric circuit terminal (ECT) disposed on one of the substrates, said first electrical circuit terminal coupled to a 1<sup>st</sup> integrated circuit chip (ICC) to receive electrical signals therefrom;

a 2<sup>nd</sup> ECT disposed on one of the substrates, said 2<sup>nd</sup> ECT coupled to a 2<sup>nd</sup> ICC to provide electrical signal thereto;

optical waveguide means in at least one of the substrates for propagating optical signals; optical signal source means in at least one of the substrates for generating optical signals in at least one of the substrates according to the electrical signals received at said first electrical circuit terminal;

an optical detection means in at least one of the substrates for detecting optical signals and generating electrical signals therefrom which are coupled to the second electrical circuit terminal; and

stack optical waveguide coupling means to communicate optical signals between the plurality of substrates in combination with the rest of claim 41.

An electrooptic (EO) module comprising :

at least one substrate, wherein each substrate is selected from a group consisting of substrates with passive polymer waveguides, substrates with electrooptic elements embedded in a polymer film, substrates having embedded electrical elements, and substrates having passive polymer waveguides and embedded electrical and electro-optic elements;

a 1<sup>st</sup> electric circuit terminal (ECT) disposed on one of the substrates, said first electrical circuit terminal coupled to a 1<sup>st</sup> integrated circuit chip (ICC) to receive electrical signals therefrom;

a 2<sup>nd</sup> ECT disposed on one of the substrates, said 2<sup>nd</sup> ECT coupled to a 2<sup>nd</sup> ICC to provide electrical signal thereto;

optical waveguide means in at least one of the substrates for propagating optical signals; optical signal source means in at least one of the substrates for generating optical signals in at least one of the substrates according to the electrical signals received at said first electrical circuit terminal;

an optical detection means in at least one of the substrates for detecting optical signals and generating electrical signals therefrom which are coupled to the second electrical circuit terminal; and at least one electrical board; and via means for making electrical connections in combination with the rest of claim 43.

An electrooptic (EO) module comprising :

at least one substrate, wherein each substrate is selected from a group consisting of substrates with passive polymer waveguides, substrates with electrooptic elements embedded in a polymer film, substrates having embedded electrical elements, and substrates having passive polymer waveguides and embedded electrical and electro-optic elements;

a 1<sup>st</sup> electric circuit terminal (ECT) disposed on one of the substrates, said first electrical circuit terminal coupled to a 1<sup>st</sup> integrated circuit chip (ICC) to receive electrical signals therefrom;

a 2<sup>nd</sup> ECT disposed on one of the substrates, said 2<sup>nd</sup> ECT coupled to a 2<sup>nd</sup> ICC to provide electrical signal thereto;

optical waveguide means in at least one of the substrates for propagating optical signals; optical signal source means in at least one of the substrates for generating optical signals in at least one of the substrates according to the electrical signals received at said first electrical circuit terminal;

an optical detection means in at least one of the substrates for detecting optical signals and generating electrical signals therefrom which are coupled to the second electrical circuit terminal; and at least one electrical board; and via means for making electrical connections and flexible coupling means for coupling optical energy to at least one waveguide of a substrate containing waveguides in combination with the rest of claim 44.

An electrooptic (EO) module comprising :

at least one substrate, wherein each substrate is selected from a group consisting of substrates with passive polymer waveguides, substrates with electrooptic elements embedded in a polymer film, substrates having embedded electrical elements, and substrates having passive polymer waveguides and embedded electrical and electro-optic elements;

a 1<sup>st</sup> electric circuit terminal (ECT) disposed on one of the substrates, said first electrical circuit terminal coupled to a 1<sup>st</sup> integrated circuit chip (ICC) to receive electrical signals therefrom;

a 2<sup>nd</sup> ECT disposed on one of the substrates, said 2<sup>nd</sup> ECT coupled to a 2<sup>nd</sup> ICC to provide electrical signal thereto;

optical waveguide means in at least one of the substrates for propagating optical signals; optical switch means in at least one of the substrates for switching optical power or an optical signal in at least one of the substrates according to the electrical signals received at said first electrical circuit terminal;

optical detection means in at least one of the substrates for detecting the switched optical power or signal and generating electrical signals therefrom which are coupled to the second electrical circuit terminal in combination with the rest of claim 45.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Mooney whose telephone number is 703-308-6125. The examiner can normally be reached during weekdays, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 703-308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956. An alternative useful number for status inquiries is 703-306-3329.

  
Michael P. Mooney  
Examiner  
Art Unit 2877

  
Frank G. Font  
Supervisory Patent Examiner  
Art Unit 2877

FGF/mpm  
11/25/03